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ABSTRACT

This paper delineates models of drug abuse prevention education that have been indicated in the literature during the past six years, and discusses the research related to each. The nine models were considered according to: (1) basic premises, (2) positive and negative salient criticisms, and, (3) implications and modes of application for drug abuse prevention education. Models under discussion are: (1) the legal, political model; (2) the fear induction model; (3) the medical, psychiatric model; (4) the psychosocial, human skills model; (5) the information processing, rationality model; (6) the reinforcement model; (7) the religious, spiritual model; (8) the assumed drive model; and (9) the alternatives model. What emerges from the reported data is that drug abuse is a complex phenomenon and that a wide variety of programs and modes have been used in an attempt to counteract it. First, peer influence seems an effective way of bringing about desired changes in drug abusing behavior, particularly among young persons. A second important consideration involves human interaction, a theme paramount to the medical psychiatric, psycho-social human skills, reinforcement and the alternatives models. This present review calls, as do other similar reviews, for more and better research and followup. Since humans vary so greatly, it seems unlikely that the linkage of a decline in drug use to some specific fact of one particular mode of prevention education will occur. The plethora of approaches and models may remain, for some time to come, the most reasonable attack on the problem. (Author/PC)

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Different Strokes:
Models of Drug Abuse Prevention Education

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Since the beginning of the youthful drug scare in the 1960's, millions of dollars of federal, state, municipal, school district and private agency money have been spent in thousands of drug abuse prevention education programs across the nation. Recent reviews of the literature (Braucht, Follingstad, Brakarsh, and Berry, 1973; W.H.O., 1973; Randall and Wong, 1974) have come up with the same conclusion: there is little substantiated evidence that drug abuse education programs have any lasting effect on the drug using behavior of the clients. Furthermore, there is no evidence that speaks to the question, "What kinds of drug education programs have what kinds of effects on what kinds of people?"

Instead of well evaluated, theoretically grounded programs, what has emerged is a large and varied number of approaches, all seemingly unaware of their philosophical proclivities, which have operated without clearly stated goals. Much criticism can be excused on the grounds that most attempts at drug education are recent; the true road to salvation, if one exists, is not well paved nor clearly lighted. The time is ripe, however, for a systematic analysis of the underlying assumptions and philosophical perspectives indicated by the literature.

This paper will first delineate models of drug abuse prevention education that seem to be indicated by the literature of the past six years. The second part of the paper is devoted to discussion of the research related to each model.

Each of nine models will be considered according to: (1) its basic premises; (2) positive and negative salient criticisms; and (3) implications and modes of application for drug abuse prevention education.

In order, the models that will be considered are: 1. the Legal Political Model; 2. the Fear Induction Model; 3. the Medical, Psychiatric Model; 4. the Psycho Social, Human Skills Model; 5. the Information Processing, Rationality Model; 6. the Reinforcement Model; 7. the Religious and Spiritual Model; 8. the Assumed Drive Model; and 9. the Alternatives Model.

Models

1. The Legal-Political Model

(1) For the last forty years, the legal-political model has been the most popular approach to prevention of drug abuse. Drug abusing behavior is seen as wrong and made a crime. Strict laws are enacted with severe penalties for transgressors. The basis for these laws may be the definition of these behaviors as immoral, or it may pass under the general rubric of the protection of the public welfare. In any case, the principle goal of this model is the suppression of drug using behavior.

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*For purposes of this paper drug abuse is taken to mean the chronic excessive use of a mind altering chemical(s) to the extent that normal human functioning is significantly impaired.

(2) In societies where great emphasis is placed on respect and obedience to legal or moral authority, this approach is quite workable. A principle of governance that holds for any society is that laws that govern must have a high percentage of voluntary compliance to be viable. Enforcement is otherwise impossible. At present, certain drug laws are violated by large numbers of Americans with apparent impunity. Tens of millions have used marijuana illegally; millions of others have used other illegal drugs or have used legally prescribed drugs in illegal ways; and still others manipulate the drug prescription system for their own ends. It has become fairly clear that laws passed to regulate private use of chemicals are enforceable only through extreme measures.

In addition, the legal system as it is presently applied, is clearly not consistent within a general policy of protecting the public welfare. While some quite dangerous drugs are exempted from legal prohibition, extreme penalties are attached to the sale and use of other drugs shown by empirical evidence to be less harmful. In general the widespread disregard of many drug laws points to a growing lack of acceptance of the laws and an unwillingness on the part of large numbers of people to abide by them.

(3) The legal-political approach to prevention has usually led to the handling of drug abuse prevention education by police officers and government officials. In the most usual format, these outside authorities are brought in to put on demonstrative programs aimed at exposing students to information and opinion about the danger of drugs. Often the presentations are limited to illegal drugs and focus on the legal and moral implications of their use.

Little or no evaluation of the effectiveness of this model has been carried out. Nevertheless, considering its extensive use and the concurrent dramatic rise in drug abuse among youth, it seems fairly clear that this approach to drug abuse prevention has not been particularly effective. To the degree that this approach is based on biased and sometimes incorrect information, and is coupled with hypocritical enforcement, it may have the unintentional effect of creating disillusionment and distrust for the legal-political system in general.

2. The Fear Induction Model

(1) It is a fact that if people never experiment with drugs they will never use or become dependent on them. One way to accomplish this total abstinence is to mystify drugs and attach to them and their use enormous power to accomplish evil. Beginning in the 1920's an intensive scare campaign was carried on to attach to drug use the most horrible of associations--mental derangement, physical disfigurement, crimes of violence and passion, and, perhaps worst of all, the loosening of inhibitions. Films, presentations, and other exhortations were constructed to carry this message, the apparent motive being the protection and maintenance of the moral fiber of the citizenry.

(2) This approach is slightly more subtle than outright suppression. It depends heavily on the conditioning of fear responses to particular stimulus objects and is used quite effectively throughout the world in controlling peoples' behavior. It is especially popular in totalitarian regimes and quite successful in use with populations of superstitious people to whom life is a somewhat fearful prospect anyway.

The use of the model depends on absolute control of information sources. If only a few people talk about or are witnessed in the transgression of the rite—in this case drug use—the mysticism breaks down. Exposition of the deception can cause reaction on the part of the deceived, leading to anger, disillusionment and over-reaction to the once tabooed behavior.

In addition, as with the previous legal-political model, this model presumes some monolithic concept of "drug" to which all sorts of evils can be ascribed without regard to differences of strength, quality, effect, toxicity, potential benefit, etc. Thus, when there are drugs in general use that cannot be proscribed because of societal acceptance, such as alcohol, nicotine, and caffeine, they must be renamed as non-drugs. These transformed drugs are then outside of the prohibited category, adding further to the deception.

(3) This approach has taken many forms. In its heyday, many films, filled with blatantly erroneous information, dramatically depicted the consequences of drug use. Billed as comedies on college campuses, the films today provide non-mute testimony to a history of countereffective deception. Other forms include testimonials by addicts as to the horror of use, the showing of pictures of disfigured users, emphasis on the syringe, or association of drugs with blood, snakes and other stimuli generally accepted as fearful and loathsome.

While the heyday of this model has passed, it is still extant. Many of the recent films and much mass anti-drug advertising rely, in part, on this technique.

3. The Medical, Psychiatric Model

(1) This model is an amalgamation of two or three closely linked points of view. Basic to these points of view is the assumption that something is wrong with a person who uses drugs to excess; drug abuse must indicate either psychological or physical dysfunction. The psychological point of view assumes the cause to be trauma, blockage, or other malfunction deeply rooted in the subject's unconscious mind as a result of some early life experiences. A related point of view assumes an unknown physical or, in some cases, psychophysical dysfunction. In either case, the individual is labeled as suffering from an incurable illness, the prevention of which is complete abstention from drug use.

(2) To a great degree, this model also relies on the mystification of the symptom of drug abuse and its causes. A large number of psychoanalysts, psychiatrists, and psychologists, provide one-to-one therapy in the service of this mystification. The success rate of cure has been low. For our purposes, however, the major drawback of this model is that it prescribes little in the way of abuse prevention education.

(3) The medical, psychiatric model focusing primarily on the alleviation of sickness post hoc, has little to say about the problem of prevention. At best two points can be made: (a) great care should be taken to avoid establishing psychologically traumatic blockages especially during infant development; and (b) at an older level, people who are prone to chemical dependency should be identified and given early intervention treatment to free them from their fate. Unfortunately, no reliable, efficient methods have ever been devised to accomplish these recommendations.

In short, regardless of the degree of truth inherent in this model, there is not much to recommend it as a model for drug abuse prevention.

4. The Psycho-Social, Human Skills Model

(1) This model begins with the assumption that drug use is a symptom of some deficit in psychological-social growth. It presumes that people are filling a gap in their lives with drugs that need not be there if either personalities or environment were providing ingredients for a meaningful, happy way of living. Given this assumption, there are two directions abuse prevention may take: attempt to restructure the environment, or attempt to remediate the person so that she/he is better able to meet needs in non-chemically induced ways.

Changing the environment is a heady task--not one that is likely to show much accomplishment in the short run. While many theorists and practitioners probably hold this out for a long range goal, most see the immediate problem as one of building more complete people with fewer deficiencies. Most see the deficiencies as occurring developmentally, i.e. the individual may or may not learn the necessary skills, attitudes, or concepts while growing up. Thus, special attention should be paid to these particular areas for youth, and programs should be developed to remediate deficiencies that do already exist.

Johnson (1974) for example has developed a theory which delineates six "social effectiveness" skills that are posited to have a direct relationship on later drug use: a. the trusting attitudes that one can rely upon the affection and support of other people; b. the attitudes of confidence in one's capabilities and in one's capacity to effect desired change in the

environment through the application of these capabilities; c. the attitude that there is a meaningful purpose and direction in one's life; d. an integrated and coherent set of attitudes defining one's self identity; e. the cognitive capacity to take the cognitive and emotional perspective of other people within a situation; and f. the interpersonal skills needed to build and maintain socially effective relationships.

According to the theory, building strength in these areas, either as people grow and develop, and/or providing remedial programs for people who may be deficient in one or more of these areas will have a significant effect on the probability of drug abuse occurring in those people impacted.

(2) Since there is a substantial body of research showing correlational relationships between several of these variables and people who have had problems with various kinds of drugs, this approach seems to hold promise. To blame the environment for problems of social dysfunction, however, is a common and easy task. That part of the formula is simple. The remaining part, i.e. devising new environments that will do a better job in creating more drug abuse resistant people, and proving their superiority, is more difficult. In any case, it is unlikely that formal education in the usual form that we know now will lead to curtailment of drug use. Colleges and graduate universities, for example, are often places where drugs are used most widely (Dvorak, 1972).

(3) The implications of this model for application in drug abuse prevention education have been delineated as: change the psycho-social environment within which people are developed; and/or provide supplementary or remedial experiences that go beyond the usual environment. In its extreme form, choice number one constitutes a frontal attack on and complete revision of the whole

society so that it will conform to what theorists predict will produce a drug abuse resistant individual.

In actual practice this approach has meant the development of special programs aimed at enhancing specific skills, behaviors and attitudes of growing youth. In addition, programs and insightful experiences have been developed that try to influence the way adults who work with youth interact with them.

An offshoot of this psycho-social approach to drug abuse prevention education is the present movement concerned with values clarification education (Raths, 1964; Simon, et. al., 1972; Brotman and Suffet, 1973; Smith, 1973; Paulson, 1974). Although this ethic insists that all values are to be respected, there is a covert assumption that focus on personal value clarification will lead to the adoption of values that are not congruent with drug use. The federal government has identified this approach as one of the two most effective modes of Drug Education (USDHEW, 1974).

3. The Information Processing, Rationality Model

(1) The presumption that the human animal operates on a rational basis doesn't seem to be too risky a proposition. This model makes that assumption and goes a step further. The rationality model assumes that if drug abuse prevention education confines itself to giving the facts about drugs - what they are, what they do, how they make a person feel, and what are the short range and long range physical, social, and legal consequences - people will come to the rational, logical conclusion to stay away from psychoactive chemicals. Programs that strictly adhere to this model stay away from preaching,

moralizing, or scaring, and aim at providing as many of the facts as they can about chemical and behavioral pharmacology, body systemic interactions, and legal implications.

(2) In addition to the assumption that the human determines his behavior in a rational, logical manner, this approach further assumes that information leads to modified behavior. Based on these assumptions, this model hypothesizes that analysis of the facts about drugs will lead logically to a decision not to use drugs. There is little or no data to support any of these conclusions. In fact, some studies indicate an increase in drug experimentation after drug information programs. The motivation for this increased experimentation is unknown. Decreased fear, increased curiosity, a lack of trust in authority, and a need to find out for oneself all seem to contribute. In addition, while the human seems to base some of his decision making on logical processes, she/he seems very prone to opting for short range positive outcomes when they are opposed by long-range negative outcomes of undetermined probability.

The most obvious evidence against this assumption is the continued use of legal drugs such as tobacco and alcohol products. Despite authenticated warnings about the increased long range probabilities for the contraction of many diseases as a consequence of smoking, and the incredible toll in money, lost efficiency, and human suffering related to alcohol use, the intake of these two drugs continues to increase.

(3) The mode of employing this approach, if it were carried out in its strictest sense, would be to give information in the most objective manner possible. Just about all forms of media presentation including films, computer aided instruction, books, chemical analysis stations, and the like would be employed for information giving without exhortations.

Even the adherents to this approach, however, don't seem to have complete trust in its capability to induce youth not to use drugs. The federal government reports that a more usual approach is logical information giving "mixed with plenty of puritan ethics" (USDHEW, 1974).

6. The Reinforcement Model

(1) This is perhaps the most theoretically sound model. The effects of positive and negative reinforcement have been empirically demonstrated in thousands of laboratory and field studies employing a wide variety of animals from one-celled planaria to humans. It is quite clear that behavior of some kinds is learned through conditioning experiences, and that these experiences can, in many circumstances be purposefully arranged so that desired results will be obtained.

Perhaps this model is at its best in providing a theoretical explanation for why drug abuse and dependency occur. Drugs, and the related effects produced or associated with their use, are very powerful reinforcers. In fact many theorists explain drug abuse and chemical dependency solely on the basis of the fact that taking drugs is both positively and negatively reinforcing. The behavior is positively reinforced by the pleasant sensations produced and negatively reinforced by the taking away of feelings of anxiety, tension, depression, etc.

If drug abuse tendencies are brought about through reinforcement conditioning then, the argument reads, prevention can also rely on the application of these same principles.

(2) The very procrustean nature of this paradigm in its ability to explain so much of human behavior makes disagreement difficult. Nevertheless, applications of the theory in drug rehavilitation have not been uniformly successful. Applications in drug abuse prevention education have been so minimal and poorly documented that there is little reason to flock to its gates as a panacea for drug abuse problems.

A major difficulty in the application of this model lies in controlling the variables involved to the degree necessary for success. This is especially true when the emphasis is on positive reinforcement. Anti-drug responses, or at least responses reflecting reasoned, thoughtful ideas concerning drug abuse, must occur before they can be reinforced. This necessarily involves the structuring of an environment in which they will occur.

Unfortunately the real environment in which Americans live is one that pushes and encourages drug use. In the interests of higher sales, the lubrication of social contact, and the avoidance of even minimal pain, drugs such as alcohol and tobacco as well as prescription and over the counter drugs, are pushed with fervor by the media, by colleagues, and by a generalized societal sanction for using approved chemical comforters. Without a change in the foregoing onslaught, it is doubtful that a few occurrences of reinforcement for views in opposition to the general environment will have much long run effect.

(3) Control over the source of reinforcement is central to the application of this model. At some levels of development, teachers, parents, and other authority figures partially control such reinforcers as attention, recognition, and approval. In the use of this approach, then, instructors

and peers are trained to positively reinforce appropriate anti-drug verbal behavior, usually in small group settings.

Many of the drug abuse education programs can be viewed as a loss system-application of these same principles. The emphasis on using both straight and reformed user peers is in a sense an attempt to attach authoritative reinforcement to the non use of chemicals. In addition, the glorification of the natural foods, clean air, outdoor enjoyments, natural states of mind, and the like, is in a sense the building of positive alternative reinforcements. In the latter case, drug using adherents, however, might rejoinder with comment on the naturalness of nature's own weed, cactus, and mushroom.

At a more philosophical level, there is a continuing debate over the appropriateness of any methods which employ procedures aimed at behavior modification toward a specific end willed by an authority. The willfulness and liberty of mankind is considered by some as sacrosanct. Systematic attempts at control are often fought with vigor in philosophical treatises as well as in the courts.

7. The Religious Spiritual Model

(1) This model sees the answer to drug abuse in the dedication of one's life to a religious entity or set of faith-derived principles. With the inculcation of the religious faith usually comes an imposition of a very strict set of rules that guide behavior. In most cases drug use is not allowed, in others it may be allowed only ceremonially.

Usually these groups of faithful are closely knit and highly dedicated. They promote and take part in numerous activities that occur frequently, and stress activities that promote public service. The fellowship for those who

are admitted to the faith is usually very warm, quite emotional, apparently fulfilling, and involves frequent interpersonal interchange.

(2) As a model for drug abuse prevention, this model is consummately successful. Drug use and abuse in the most strict and serious of these groups is practically nonexistent. Even among the adherents of the more loosely structured, less demanding, and less strict religious groupings, drug abuse is far less common than it is among people whose religious beliefs are weak or not oriented toward any formal expression (Blum, et al., 1970). In general, most religious affiliation has been shown to be correlated with attenuated drug use.

The religious spiritual model does not seem to appeal, however, to the average member of the drug abusing population. Strict, fundamentalist groups attract as followers only a small percentage of youth. In addition, it cannot be promoted in the schools or by public agencies. As one alternative available to those who would choose for themselves, however, it is certainly viable.

(3) As a choice available to those who are prone or willing to enter into the covenant required, this model is a highly successful deterrent to drug abuse. In general though, it is not promotable by public agencies.

In practice, this model stresses numerous social and spiritual activities that may operate to fill needs for alternatives. In addition, the model provides for metaphysical needs not assumed by other models of drug abuse prevention. The prescribed set of values and attitudes reflect loving, caring, sharing, and serving. In many cases the actual resulting behaviors among devotees create an atmosphere that stresses warm supportive interpersonal interchange.

These same behaviors and experiences are similar to the human skills building experiences advocated by the psycho-social model. Part of the effectiveness of this model in ameliorating drug abusing behavior should probably be ascribed to these techniques and experiences. The fulfillment of a spiritual need and the self fulfilling demands of faith required by this approach may well account for its unusual effectiveness.

8. The Assumed Drive Model

(1) This model assumes a human need that goes beyond the pleasure principle to an actual psychobiological dribe toward what are variously called "peak experiences": (Maslow, 1959), "fully-functioning" levels Rogers, 1961), "genetic transcendence" and "neuroelectrical ecstasy" (Leary, 1973) and "altered state of consciousness" (Weil, 1972). Adherents propose that the consuming drive to achieve these states is a natural part of human functioning and point out humankind's use throughout history to achieve these states. They point out that with the discovery and synthesis of new and more potent chemicals the current rise in drug use becomes predictable. It follows that the drive exists and if society does not provide the environment for the satisfaction of this drive without drugs, people will turn to whatever means are available for at least its temporary satisfaction.

For some, drug use is the easiest way of satisfying the need to achieve altered states of consciousness. While the chemical route may offer only temporary relief from the drive, some adherents to this model suggest that the use of drugs is one way of opening up blockages and providing enhanced possibilities for achieving further real growth toward the transcendent goal state (Weil, 1972; Leary, 1973).

Most proponents of this model would agree that these states, though elusive, are attainable through non-drug means, e.g. through the manipulation of experiences which provide movement toward this goal state. Most would also agree that these non-drug consciousness states, though harder to attain, are deeper, longer lasting, and more rewarding.

(2) It is difficult to criticize a position that assumes some basic physiological/spiritual drive state. The evidence that this is, in fact, an inbred drive and not a learned tendency toward experiences that produce pleasure is hardly more than speculative. Perhaps it is not necessary and not even especially helpful to presume such a drive. To propose that certain experiences are pleasant--perhaps exceptionally pleasant--and that people will try to achieve them, is enough, at least for the purposes of drug abuse education.

It may not be reasonable to assume that if pleasurable levels of consciousness can be achieved through non-drug means, they will be chosen over their drug induced counterparts. Achieving "transcendent" states through non-drug means may require effort, dilligence, and, if the writings of Eastern and Western sages is to be believed, may occur only as slow movement toward a goal. It appears, however, that this movement is brought about at least partly through the learning of appropriate psychological sets and responses. Once learned it seems reasonable to assume that the learning will be long lasting and self-directed rather than temporary and dependent on the ingestion of a foreign chemical.

(3) If the presumption is made that the drive toward self actualization and altered states of consciousness is innate, the mandate of drug abuse prevention is to help people achieve such states without abusing drugs. At one

level this may go as far as education in safe techniques for using mind altering chemicals, providing group facilitated drug trips, or setting up "get high comfort stations". Given the present value structure of majority American society, it is more likely, however, that the achievement of growth towards "higher levels of consciousness" will be sanctioned only through non-drug induced experiences. Currently, meditation, Yogic practices, bio-feedback of brain wave status, and hypnosis provide such experiences (Tart, 1969).

To some degree the implications for drug education stemming from this model merge with the alternatives model that follows. Both assume that similar experiences to those induced by the chemically altered state can be achieved through non-drug means. One difference is, that in the Assumed Drive Model there is a long range emphasis toward achieving personal growth toward higher levels of consciousness. In the Alternatives Model, this may be a goal, but it is not necessary.

9. The Alternatives Model

(1) The alternatives model for drug abuse prevention begins with the consciousness state induced by drugs. Adherents attempt to identify the feelings and cognitions that make the drug induced state attractive and desirable. Then it makes the assumptions that; these mental states can be brought about without the ingestion of externally produced chemicals; and, a "natural" method is to be desired over the chemically induced method.

A few writers have produced analyses of the chemically induced state of consciousness. In general they arrive at the following characteristics: (a) a sense of euphoria, of high, of feeling good, a feeling that everything is all right; (b) a physical and mental relaxation coupled with peace of mind;

(c) a feeling that there is a meaning to life; (d) a feeling of oneness, of unity both within oneself and with the rest of the world, a harmony; (e) a sense of communication and communion with others, of involvement, of closeness and trust; (f) a feeling of insight about self, life and associated problems; (g) altered perceptions of time, space, touch, vision, etc., new ways of looking at things, problems, ideas; and (h) a certain ineffable, unexplainable quality that can't be put into words. (Adapted from Brantner, 1974; Cohen, 1971.)

The next step is to identify non-drug experiences that can bring on these same mental states. Some authors have set about doing that (Cohen, 1971; Dohner, 1972; Payne, 1973; Masters and Houston, 1972) and have elaborated many suggested alternative experiences which supposedly supply the same kinds of feelings and cognitions.

(2) One prominent criticism of this approach can be alluded to anecdotally. When it was suggested at a recent meeting attended by the author, that experiences such as parachute jumping, hang-gliding, and aboriling may be "substitute" experiences that could be introduced as an alternative to drug induced experiences, a drug-using friend remarked in an aside, "Wow! can you imagine how far-out it would be to be stoned and floating down on a 'parachute". In short, in order to be true "alternatives" to drug use, any suggested experience must be such that it would not be enhanced by experiencing it in a chemically altered state.

In addition, the provision of alternatives to the chemical intoxicated state assumes that there are some characteristics in the drugged state that are indeed identifiable, replicable, and will retain their attractiveness over many attainments. Even the most unique experiences, however, can become habituated to and boring.

On the surface it seems plausible that non-chemically induced experiences can take the place of those to be achieved through chemical intoxication. On closer inspection, something is missing - perhaps the assumption is too simplistic, perhaps it is another case of treating the symptom and not the cause, perhaps there really is some underlying motivation, need, drive or personality imperfection. In any case, an appeal to alternative experiences that imitate chemically intoxicated consciousness seems to be placing the responsibility for the root of the drug abuse problem in the drugs themselves as opposed to in the individual. Ultimately the reason for abusing drugs lies in the individual who abuses them as well as in the cultural/societal environment. The drunk, stoned, intoxicated, smashed, wrecked, feeling no pain, or high state is one that can be triggered by a chemical, but it is ultimately created by the individual.

Finally, viewing the provision of these experiences as "alternatives" to drug use is to some degree to set them aside as special and apart from normalcy. It might be better to go one step further and to see these "alternatives" as not specifically "alternatives" but as integrated parts of the virtually infinite possibilities for life experiences. Rather than making them experiences introduced as potential substitutes they could be part of the panorama of natural choices that exist for every person, regardless of her/his propensity toward drug abuse.

(3) Narrowly defined, this model attempts to define the characteristic factors of the chemically induced high and, define alternative non-drug experiences that produce a similar state of consciousness. The role of drug education would be to introduce and further the opportunity for these experiences in our society in the hopes that people would choose them over drugs.

There have been no documented evaluations of the effect of such programs on drug abusing behavior. It is hard to imagine how a causal connection could be definitely established. The underlying principle, however, seems reasonable: society should provide the maximum number of alternative opportunities for people to engage in potentially meaningful activities, with a system for the provision of help and guidance for getting into these activities.

Research

Most of the foregoing models have been formulated from the large body of literature on drug abuse prevention education. While the literature is wide ranging and provides much food for hypothesis generation, there is little substance in the form of objective, quantifiable evidence of effects. In this section, I will match the evidence to be found with the models presented.

While the fear induction model and the legal-political model have been the primary modes of drug abuse prevention education, there is little in the way of objective evidence to recommend their use. Although both these techniques work in controlling behavior, at least in the short run, there is plenty of evidence to indicate that people are weighing the probabilities of arrest for the private use of drugs and are finding them within the limits of their willingness to risk. Both the use of illicit drugs and the illicit use of legal drugs involve a significant and rising number of Americans. An NIMH study reports, for example, that as long ago as 1969, 27% of the prescription psychoactive drugs used in San Francisco were obtained through informal "gray market" channels (Mellinger, 1969).

There is some evidence to show that the use of outside professionals and other authority figures in drug abuse education is effective (Geis, 1969; Ungerleider and Bowen, 1969; Weinswig and Weinswig, 1969). Another study asking college students to rate several kinds of authorities at "preventing or stopping the use of dangerous drugs" assessed the effectiveness of types of authority used. The results placed "doctors and other health professionals" third behind "former users" and "friends". Law enforcement officials and lawyers were placed eighth and ninth respectively, barely ahead of clergy. (Martin and O'Rourke, 1972.) A similar study of high school students corroborates the high ranking of friends and other users as the most trusted authorities and ranks doctors and scientists as less credible sources (Smart and Fejer, 1972). Among soldiers in the U.S. Army in Europe, however, physicians were the preferred sources of information, with former addicts coming in a distant second (Tennant, 1972). A different study indicated that drug users rejected information from both users and "straights", but were more prone to reject it from "straights" (Smart, 1972).

The use of the former addict and the user as an outside authority in drug education programs has been popular (Blum, 1972; Geis, 1969; Kline and Wilson, 1972; Snowden and Cotler, 1973; Swisher, 1968), but not necessarily an effective approach in changing attitudes or behavior (Swisher et. al, 1973; Swisher, Warner and Harr, 1972).

Apparently the authorities who will be listened to most attentively are people who "have been there" and friends reporting personal experience (Capone et. al., 1973; Lawler, 1971). Direct experience seems to be the criterion, and the degree to which the authority is seen as having experience, increases her/his effectiveness. The ranking of clergy last may buttress this conclusion.

Evidence for the effectiveness of the medical psychiatric model in drug rehabilitation is good when the format is self help groups, but poor for one-to-one therapy. Evidence for the use of this model in drug abuse prevention education, is virtually non-existent. To the degree that psychiatric help establishes positive mental health, the model probably relies on some of the same basic assumptions of the psycho-social human skills model; if people are in a state of positive mental health, they will not need to use drugs to a level of abuse (Miller, 1973).

The evidence that speaks to the latter assumption, and to the argument of the human skills model generally, has evolved from clinical, anecdotal, and some correlational/experimental data Braucht et. al., (1973) reviewed evidence for psycho-social correlates to deviant drug use in adolescence. The data indicates correlations between characteristics in their background, e.g., family cohesiveness, family drug use, religion, self definition, anxiety, sex role conflict, with later drug abuse. Other research has also pointed to family and adjustment problems as primary in distinguishing potential drug abusers (Blum, 1972; Goodman, 1972; Green et. al., 1973) while Gossett (1972) reported that drug users in his survey indicated greater signs of "emotional disturbance". Low levels of self esteem have also been shown to relate to drug abusing problems (Green et. al., 1973; Kaplan and Megerwitz, 1970; Norem-Hebeisen, 1974).

Although feelings of alienation do not seem to correlate with illicit drug use, other than alcohol and tobacco, among adolescents (Warner and Swisher, 1971), Tennant (1972) reported that opiate addicted soldiers tended to have a history of deviant behavior before entering the armed forces. In a slightly different approach, Mellinger et. al (1974) used a national drug

survey to show that drug use among women and men is related to psychic distress and life crisis. Again, the most popular drugs were prescription drugs and alcohol. Taken as a whole, these data seem to indicate that control of certain psycho-social factors might contribute heavily to control of drug abuse.

It must be pointed out that there is no experimental evidence to indicate a causal relationship among these variables. There have not been the longitudinal studies necessary to speak with confidence about the experimental manipulation of these psycho-social variables and their relation to drug abuse. The literature does suggest, however, a relationship between some psycho-social variables and drug abuse. Most of these characteristics are learned tendencies and there is evidence that specific programs can have some effect on their development. The formulation and testing of specific variables in a longitudinal study of large scope seem to be indicated as the next step.

Evidence for the viability of the information processing, rationality model is mixed. It is fairly clear that increased information about drugs does not lead automatically to the curtailment of drug use. In fact, it may increase experimentation with certain kinds of drugs (Stuart, 1974; Tennant, 1973; Weaver and Tennant, 1973). There is however some indication that drug analysis programs supplying information on the quality and purity of street drugs may at least lead to more careful use (Pearlman and Silvern, 1973).

While it has been shown to be possible to bring about large increases in the knowledge base of participants in drug education programs. this does not necessarily bring about a corresponding change in attitude toward drugs (Anthony et. al, 1974; Korn and Goldstein, 1973; Smith, 1971; Swanson, 1972; Swisher and Crawford, 1971; Weaver and Tennant, 1973). It can be argued that the research designs used involving immediate post testing does not allow

enough time to detect changes in attitude formation. It may also be argued that the instruments used in the attitude measurement are not sensitive to the kinds of changes occurring. The most logical argument to make, however, is that delivery of information alone does not bring about change relevant to the diminuation of drug use. In fact, many of the studies that indicate no change in attitude, also indicate no change in drug using behavior as reported by students. In any case, if the objective of drug education is abstinence, or even strict curtailment of use, the information processing, rationality model does not appear to be adequate.

There is some evidence that reinforcement procedures are at least partially successful in drug dependency rehabilitation programs. The difficulty in controlling the variables, however, seems to have kept most educators from applying these same procedures in drug abuse prevention education. Two studies by Horan et. al. (1973) describe procedures for the application of reinforcement technology to drug abuse prevention. The studies report "success" in reaching goals through a small group counseling approach using reinforcement of specific verbal behavior. Unfortunately, the studies provide no data. Two other studies comparing small groups of varying format also report success in using reinforcement of verbal behavior in the small group setting (Swisher, Warner and Herr, 1972; Warner, Swisher and Horan, 1973). The researchers report gains in knowledge and attitude change in "desired directions" for members of groups using reinforcement procedures.

No data has been encountered for drug abuse prevention education programs using the religious spiritual approach. While on the one hand it can be readily assumed that converts into groups which require devotion to a deity and rigid adherence to a strict code of behavior do not use drugs to excess; it also appears to be true that outside of these groups the clergy are not

viewed as sources of accurate information about drug use and its consequences (Martin and O'Rourke, 1972). Paradoxically it is also well known that certain indigenous American religions and other quasi-religious groups judiciously use drugs in some of their ceremonies. While the religious approach is probably not suitable for broad scale public drug abuse prevention programs, it certainly is a deterrent to drug abuse for those who find meaning in it.

As has been mentioned earlier, the assumed drive model and the alternatives model do not differ greatly in the actual application of procedures for drug abuse prevention. Virtually all of the literature in this area either speculates or assumes the relationship between alternative sources of enjoyment and the drive to higher levels of consciousness. Much of the literature is an application of techniques, games, and experiences that may be employed either as alternatives to drug induced experiences or as methods of achieving these consciousness states (Cohen, 1971; Dohner, 1972; Gordon, 1972; Jones, 1971; Masters and Houston, 1972; Payne, 1973; Weil, 1972).

It is interesting to note that most of the alternatives suggested by these authors involve interactions between humans. To this degree, they are congruent with the psycho-social human skills model. The latter posits virtually all of the delineated skills as learnable--most through human contact.

Conclusions

What emerges from the mass of prose and reported data is that drug abuse is a complex phenomenon and that a wide variety of programs and modes have been used in an attempt to counteract it. Some have clearly proved themselves to be unsatisfactory; others seem to hold varying levels of promise for effectiveness in getting across particular messages. There is no clear cut evidence

for any particular guiding light. Two frequently mentioned salients seem worth comment, however.

Numerous modes of application have been attempted in the dissemination of drug abuse prevention education. Didactic presentations, testimonials, films, computer aided instruction, small group discussions, awareness exercises, sensitivity exercises, confrontation groups, demonstrations, field trips, alternative sources of feelings, self-help groups, meditation, empathy training, and many other modes have been reported in the literature. One approach that has consistently met with success is the use of peer influence (Capone et. al., 1973; DeLone, 1972; Lawler, 1971; Toigo and Kaminstein, 1972; Werren and Swisher, 1971). In correlative studies, peer sanctions, and peer influence are frequently indicated variables. When asked to rate sources of information that are seen as credible, peers always rank at or near the top (Martin and O'Rourke, 1972; Smart, 1972; Smart and Fejer, 1972).

It seems obvious then that the systematic use of peer influence would be one effective way of bringing about desired changes in drug abusing behavior. Placing an individual in a peer environment that either reinforces or does not reinforce drug use is bound to have an effect on her/his drug use. The manipulation of peer influence, however, is a difficult and touchy endeavor, fraught with the danger of backfire and further alienation from adult influence. In addition, while peer influence in youth may have positive short term goals, the commanding peer influence of the adult world toward the consumption of alcohol and tobacco portends short lived effect.

Another thread wends its way through many of the models indicating a viable approach. Drug abuse is somehow related to learning experiences in the history of the individual; the most significant of these experiences are

those in human interaction. This theme is paramount to the medical psychiatric, psycho-social human skills, reinforcement, and the alternatives models. It is a seductive conclusion to draw, but one that is difficult to apply, and even more difficult to prove. In addition, if the prescriptions of many of the theorists adhering to these models were followed, a major restructuring of American society would be in order.

When reviews such as this indicate that the state of the art is as muddled as this one appears to be, there is usually a ringing cry for more and better research: better designs; more control over extraneous vari bles; use of behavioral indicators of drug abuse as criteria for effectiveness; long term follow-up; and most centrally, clear cut formulation and measurement of goals and objectives. This review does not differ in this conclusion. However, while the research may continue to offer some clues, the ultimate linkage of a decline in drug use to some specific fact of one particular mode of prevention education seems highly unlikely.

Humans vary greatly. The complexity of their underlying motivations, crossed with the number of possible modes of drug abuse, provides more interactions than longitudinal research can soon ferret out. Until such time as it does, the plethora of approaches and models that seemed at first to be chaotic and non-productive, may be the most reasonable attack. While the prescription "different strokes for different folks" may not be very scientific, the symptoms seem to indicate it.

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